

BY DIANA VOS
PROJECT WILD COORDINATOR

UTAH—LAND OF NATURAL

Diversity

Dry deserts, mountains and wetlands

UTAH'S LANDSCAPE features a wealth of different environments—dusty deserts, forested mountains and watery wetlands—ecosystems of great diversity that not only offer endless, breathtaking vistas but also support the wide range of wildlife that inhabits the state.

Utah is primarily desert. It's desert, however, within which several major ecoregions of North America—including the Mojave Desert, the Great Basin Desert, the Rocky Mountains and the Colorado Plateau—meet to make Utah one of the most biologically diverse states in the nation.

In this article, you'll find information about Utah's unique desert regions.

The Mojave Desert: A small portion of the Mojave Desert reaches into Utah, covering only the extreme southwest corner of the state. The smallest of North America's three hot deserts (the other two are the

Sonoran and the Chihuahuan), the Mojave Desert covers 54,000 square miles, spanning from southwest Utah across Arizona and much of south-

ern California. It includes the famous Death Valley National Monument.

The Mojave Desert is classified as a "hot" desert because it receives nearly all of its precipitation as rainfall. Also, because it receives less than 8 inches of rain per year, it is considered the driest of all the North American deserts. Rainfall throughout the region varies greatly, however. For example, St. George receives an average of 7.95 inches in a year, whereas Death Valley has an annual rainfall of 1.7 inches. When rain comes, it falls mostly as scattered high intensity storms of short duration. Not only is the Mojave dry, in Utah air temperatures in the region can reach as high as 115° F. during the summer.

The Mojave Desert is characterized by parched mountains that rise abruptly from alternating plains or basins. Elevations range from 300 feet below sea level to 11,000 feet above sea level, with the most dramatic relief around Death Valley. Between the mountains, deep alluvial fans



The Mojave Desert reaches only into the extreme southwest corner of Utah.

UTAH'S WILD NOTEBOOK



The Great Basin is an arid region characterized by broad valleys and numerous long, narrow mountain ranges.

spread outward, and playas, sand dunes and alkaline springs dot the landscape.

Far from barren, the Mojave Desert supports a diverse array of unique and fascinating plant communities. Widely spaced low shrubs, including creosote bush, Mojave sage and mesquite predominate in the valleys. Cacti and a vast variety of wildflowers are featured as well. The only “tree” in the area is the spiny-armed Joshua tree (actually a yucca), one of the many endemic species (found nowhere else in the world) living within the Mojave Desert.

The region’s diverse plant life supports an incredible array of animals. Sidewinders, gila monsters, desert tortoises, road runners, kit foxes, bats, bobcats, kangaroo rats, humming-

birds, scorpions, tarantulas, pupfish and yucca moths are just a few of the area’s many wildlife residents.

The Great Basin: The Great Basin is a cold desert with snowy winters and hot, dry summers. Spanning an area of parallel mountain ranges, from Utah’s Wasatch Range on the east to the Sierra Nevada on the west, south of the Snake River Plain on the north to the bounds of the Mojave Desert on the south, the Great Basin is the largest desert in the United States. Covering approximately 190,000 square miles, it contains about 160 north-south trending mountain ranges with elevations of 7,000 to 8,000 feet. The area also has broad, sediment-filled valleys at elevations near 4,000 feet.

Sitting in the shadow of the Pacific mountain systems, the Great Basin receives little rainfall as winds passing over the Sierras are drained of their moisture. Most of the precipitation (60 percent) the Great Basin does receive comes as snow in the winter. Because the winters are cold, most plants are dormant (not growing) at that time so they can’t make use of the winter precipitation. The remainder of the moisture arrives as summer downpours and runs off in flash floods too quickly for plants to use.

In some places, solar radiation is so intense that evaporation exceeds precipitation by a factor of eight. Annual precipitation averages four to 10 inches with the mountains receiving up to 18 inches per year. Temperatures average 45° to 55° F., with great



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The Colorado Plateau is a diverse area consisting of high mountains and deep canyons carved by running water.

extremes between seasons.

Within the seemingly endless expanse of the Great Basin are virtually lifeless sun-baked playas; alkaline flats favored by salt-tolerant plants such as salt bush; greasewood and shadscale; salt lakes hosting brine shrimp and flies; sand dunes teeming with rodents; marshes that provide crucial habitat for migratory birds; vast expanses of sagebrush-steppe; pinyon-juniper woodlands; and mountain islands harboring remnant plants, aspen glens and subalpine coniferous forests.

Often referred to as the “sagebrush ocean,” gray-green sagebrush blankets 45 percent of the Great Basin. In some areas, sage composes more than 70 percent of the plant cover and 90 percent of the biomass.

With a root system that is often three times the diameter of its crown, sagebrush is able to tap sufficient water from the desert’s scarce supply. The gray-green color of its leaves also reflects light, thereby decreasing loss of water through its leaves.

Sage is a valuable source of food for several animals, including sage grouse, pygmy rabbits, mule deer and pronghorn, and is one of the few plants available year round—especially in the winter. Sagebrush also provides homes for a variety of wildlife, including the sage thrasher, sage sparrow and sagebrush lizard.

Other wildlife of the region include mountain lions, coyotes, gray fox, jackrabbits and cottontails, various small rodents, reptiles (such as the Great Basin rattlesnake), spadefoot

toads, chukar and Hungarian partridges (two transplanted non-native game birds) and a wealth of native desert-dwelling birds. These include red-tailed hawks, golden eagles, burrowing owls, horned larks and migratory shorebirds and waterfowl.

Fish species include native fishes of the former Lake Bonneville, such as the least chub, Utah chub, speckled dace and the Bonneville cutthroat trout. Populations of these natives, now mostly confined to isolated bodies of water, are being replaced by introduced species such as rainbow trout, largemouth bass and mosquito fish.

The Colorado Plateau: The Colorado Plateau is a large province covering nearly 200,000 square miles

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In addition to deserts, Utah also contains high mountains and wetlands.

extending across eastern Utah, western Colorado northern Arizona and northwestern New Mexico. It is one of the most intricate landscapes on Earth. Actually not just one plateau, the Colorado Plateau is a huge area filled with stacked plateaus, surrounded by highlands to the north and lowlands to the south and west. A unique geologic history involving laying down of sediments, mountain building events, uplift and erosion by water and wind have resulted in a strikingly colorful sculpted landscape of arches, alcoves, canyons, domes, towers, spires, bridges, potholes, hoodoos and more.

Except for the valley floors carved deep by its major rivers, the entire Colorado Plateau is above an elevation of 5,000 feet, with portions reaching up to 12,000 feet. With high alpine regions, coniferous forests, salt deserts and microbiotic (cryptogamic) soils, biodiversity abounds within the Colorado Plateau. Though much of the region is covered with sagebrush, shadscale and pinyon-juniper plant associations, a great variety of climate, elevation and soil combinations create numerous microzones that support an amazing range of plant communities. In terms of plant life, the plateau is

the richest region in the Intermountain West.

A few of the animal residents occupying various areas include the collared lizard, black-tailed jackrabbit, coyote, mule deer, bobcat, mountain lion, desert bighorn sheep, elk, Abert's squirrel, wild turkey, mourning dove, midget-faded rattlesnake, Stellar's Jay, raven, Canyon Wren, Peregrine Falcon and Mexican Spotted Owl.

Rivers and streams threading throughout the plateau house frogs, toads, garter snakes, snails, beavers, dragonflies, razorback suckers and numerous other aquatic species.

Across portions of the Colorado Plateau within Utah, from the Unita Basin south through the canyonlands region, annual precipitation varies considerably, ranging between six and 35 inches per year. The range in precipitation reflects the range in elevation across the region, with higher levels of precipitation falling as snow in the mountainous areas. Most rainfall occurs during the spring and fall seasons, and summers are very dry and hot. Temperatures average between 35 and 55 degrees Fahrenheit, with colder temperatures occurring at higher elevations.

Utah's Mountains and Wetlands

From reading this article, you can see that Utah's deserts are complex. But the state's deserts are only one of the amazing environments found in Utah. Utah also has incredible forested mountains and a wealth of wonderful wetlands.

We usually think of these areas as separate regions. But because wetlands are contained within Utah's deserts and forested mountain areas, and because the existence of mountains plays a significant role in capturing the water streaming within and filling the wet areas of the state, these environments might actually be viewed as one unique, diverse and intriguing landscape that supports the fascinating flora and fauna of Utah.

To learn about Utah's forests and wetlands, you can read parts II and III of this article online at *wildlife.utah.gov/projectwild/forestsandwetlands*. An educator's lesson featuring Utah's deserts, forests and wetlands, excellent free resources that can be requested and a list of literature connections can be found there as well.

If you are unable to access the Internet, contact Project WILD at (801) 538-4719 or e-mail *DianaVos@utah.gov* to obtain the information found at the Web site.

Getting WILD!

Utah's WILD Notebook is produced by Utah's Project WILD program. WILD workshops, offered by the Utah Division of Wildlife Resources, provide teachers and other educators with opportunities for professional development and a wealth of wildlife education activities and materials to help students learn about wildlife and its conservation.

For a current listing of Project WILD educator workshops, visit the Project WILD Web site at *wildlife.utah.gov/projectwild* or e-mail *DianaVos@utah.gov*. 🐾